

YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-3

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. EP Unit No. 84 Location _____
Formation Madison "C" Zone Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 3-01-76
Other Data Wellhead Temperature 155°F

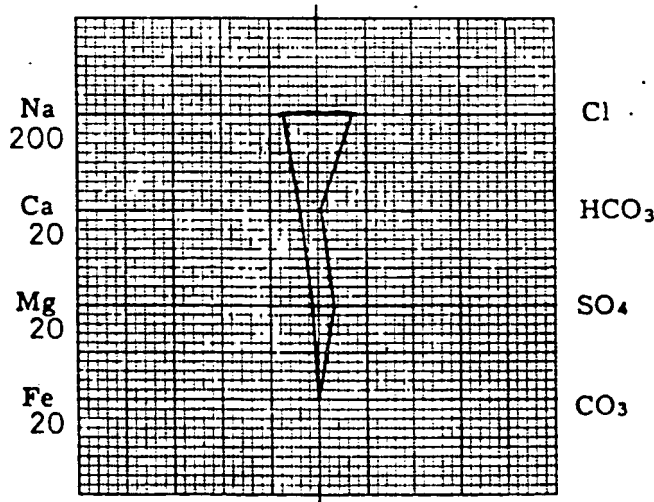
Clear, colorless water; H₂S present.

Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	17,485	760.54	46.74	By evaporation _____
Calcium	802	40.00	2.46	After ignition _____
Magnesium	156	12.85	0.79	Calculated <u>47,666</u>
Sulfate	1,585	32.97	2.03	pH <u>7.9</u>
Chloride	27,440	773.81	47.57	Specific Gravity @ 60°F <u>1.036</u>
Carbonate	0	0.00	0.00	Resistivity @ 68°F _____
Bicarbonate	403	6.60	0.41	ohms/meter ² <u>0.16</u>
Chloride as NaCl	<u>45,249</u>	PPM.	Total Solids From Resistivity as NaCl	<u>46,817</u> PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%.

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-2

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. EP Unit No. 21 Location _____
Formation Madison "C" Zone Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 3-01-76
Other Data Wellhead Temperature 195°F

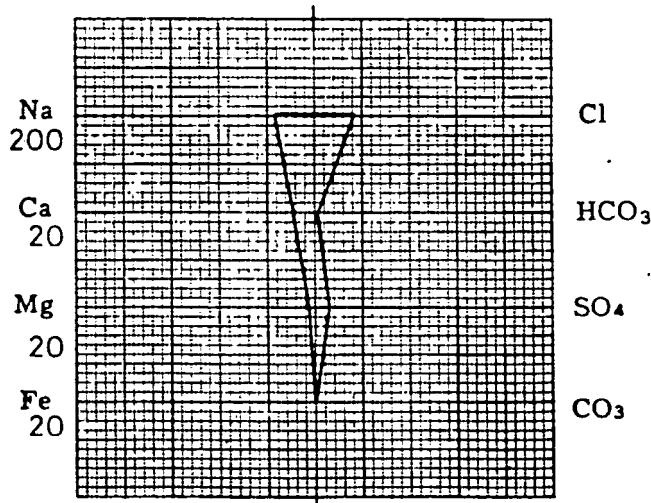
Clear, colorless water; H₂S present.

Constituents	PPM	MEQ.	MEQ. %	Total Solids In Parts per Million
Sodium	19,261	837.80	46.88	By evaporation _____
Calcium	842	42.00	2.35	After ignition _____
Magnesium	168	13.83	0.77	Calculated <u>52,317</u>
Sulfate	1,486	30.92	1.73	pH <u>7.7</u>
Chloride	30,380	856.72	47.93	Specific Gravity @ 60°F <u>1.039</u>
Carbonate	0	0.00	0.00	Resistivity @ 68°F
Bicarbonate	366	6.00	0.34	ohms/meter <u>0.16</u>
Chloride as NaCl <u>50,097</u> PPM.				Total Solids From Resistivity as NaCl <u>51,522</u> PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%.

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-1

Field North End of East Poplar Unit County Roosevelt State Montana
Well No. EP Unit No. 48 Location _____
Formation Madison "C" Zone Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 3-01-76
Other Data Wellhead Temperature 130°F

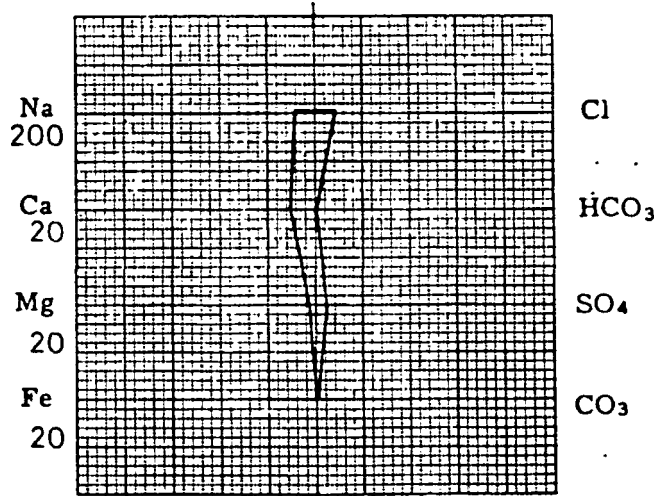
Clear, colorless water; H₂S present.

Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	9,673	420.74	43.15	By evaporation _____
Calcium	1,002	50.00	5.13	After ignition _____
Magnesium	204	16.80	1.72	Calculated <u>28,455</u>
Sulfate	1,223	25.44	2.61	pH <u>7.3</u>
Chloride	16,170	455.99	46.76	Specific Gravity @ 60°F <u>1.017</u>
Carbonate	0	0.00	0.00	Resistivity @ 68°F _____
Bicarbonate	372	6.10	0.63	ohms/meter <u>0.25</u>
Chloride as NaCl <u>25,664</u> PPM.		Total Solids From Resistivity as NaCl <u>27,791</u> PPM.		

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%.

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



YAPUNCICH, SANDERSON & BROWN

LABORATORIES

PHONE 252-6325

P. O. BOX 593

13 NO. 32nd ST.

BILLINGS, MONTANA 59103

Murphy Oil Corporation

200 Jefferson Avenue

El Dorado, Arkansas 71730

DATE 3-02-76

INVOICE NO. 14121

YOUR ORDER NO.

TERMS: NET 30 DAYS

LAB. NO.	SERVICE	AMOUNT
12700	Routine Water Analysis, 5 Samples @ \$35.00/Sample	\$ 175.00
	Evaporation for Salt, 5 Samples	25.00
		<u>\$ 200.00</u>

Madison Formation

North End of East Poplar Unit, Roosevelt County, Montana

1. EP Unit No. 48 Wellhead Temperature 130°F C Zone
2. EP Unit No. 21 Wellhead Temperature 195°F C Zone
3. EP Unit No. 84 Wellhead Temperature 185°F C Zone
4. Composite Sample Well No. 19 Wellhead Temp. 155°F A Zone
Well No. 38 Wellhead Temp. 175°F A Zone
Well No. 95 Wellhead Temp. 100°F A Zone
5. Composite Sample "B" Zone
Well No. 54 Wellhead Temp. 140°F
Well No. 56 Wellhead Temp. 135°F
Well No. 73 Wellhead Temp. 145°F

Received 2-26-76

Ordered by O. Paul Doyle

NO FURTHER STATEMENT WILL BE RENDERED UNLESS REQUESTED

SPECIALIZING IN CORE, WATER, GAS, CRUDE OIL, REFINED PETROLEUM PRODUCTS ANALYSES AND FIELD ENGINEERING SERVICES

YAPUNCICH, SANDERSON & BROWN

PHONE 252-6325

LABORATORIES

P. O. BOX 593

13 NO. 32nd ST.

BILLINGS, MONTANA 59103

Murphy Oil Corporation

200 Jefferson Avenue

El Dorado, Arkansas 71730

File
E. Poplar Unit - Data
Water Analysis
One

DATE 3-02-76

INVOICE NO. 14121
YOUR ORDER NO.

TERMS: NET 30 DAYS

LAB. NO.	SERVICE	AMOUNT
12700	Routine Water Analysis, 5 Samples @ \$35.00/sample	\$ 175.00
	Evaporation for Salt, 5 Samples	25.00
		\$ 200.00

Madison Formation

North End of East Poplar Unit, Roosevelt County, Montana

1. EP Unit No. 48 Wellhead Temperature 130°F C Zone
2. EP Unit No. 21 Wellhead Temperature 195°F C Zone
3. EP Unit No. 84 Wellhead Temperature 195°F C Zone
4. Composite Sample Well No. 19 Wellhead Temp. 155°F A Zone
Well No. 38 Wellhead Temp. 175°F A Zone
Well No. 95 Wellhead Temp. 100°F A Zone
5. Composite Sample "B" Zone
Well No. 54 Wellhead Temp. 140°F
Well No. 56 Wellhead Temp. 135°F
Well No. 73 Wellhead Temp. 145°F

Received 2-26-76

Ordered by O. Paul Doyle

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SPECIALIZING IN CORE, WATER, GAS, CRUDE OIL, REFINED PETROLEUM PRODUCTS ANALYSES AND FIELD ENGINEERING SERVICES

YAPUNCICH, SANDERSON & BROWN LABORATORIES.

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 22ND ST.

WATER ANALYSIS REPORT

Lab. No. 12260-2

Field East Poplar Unit County _____ State _____
Well No. _____ Location _____
Formation _____ Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 7-21-75
Other Data Salt Water Station No. 3 & 4 South End.
Clear, colorless water. H₂S present.

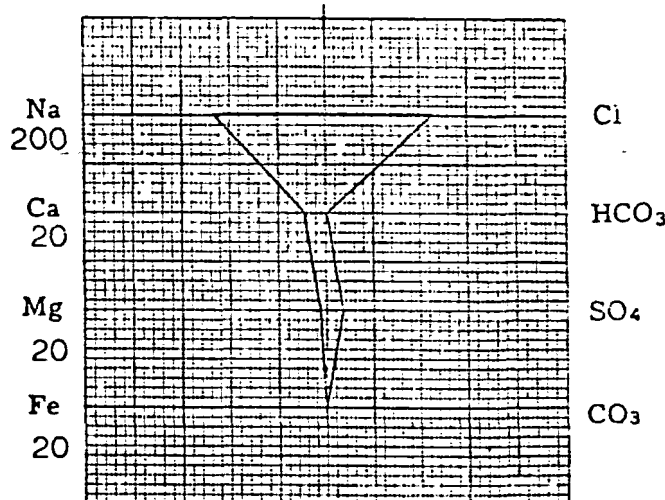
Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	52,884	2300.33	48.81	By evaporation _____
Calcium	911	45.45	0.95	After ignition _____
Magnesium	137	11.23	0.24	Calculated <u>137.990</u>
Sulfate	1,914	39.80	0.84	pH <u>6.3</u>
Chloride	82,000	2312.40	49.05	Specific Gravity @ 60°F <u>1.094</u>
Carbonate	0	0.00	0.00	Resistivity @ 68°F _____
Bicarbonate	293	4.80	0.11	ohms/meter <u>0.068</u>
Chloride as NaCl <u>135,218</u> PPM.				Total Solids From Resistivity as NaCl <u>136,991</u> PPM.

NOTE: Sodium and potassium reported as sodium. MEQ.=milliequivalents per liter. PPM=parts per million (milligrams per liter). 1 PPM equivalent to 0.001%.

1. Bromine 8 ppm
2. Iodine <1 ppm

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



(< is less than)

YAPUNCICH, SANDERSON & BROWN LABORATORIES

P. O. BOX 593
59103

BILLINGS, MONTANA

13 N. 2ND ST.

WATER ANALYSIS REPORT

Lab. No. 12260-1

Field East Poplar Unit County _____ State _____
Well No. _____ Location _____
Formation _____ Depths _____
Operator Murphy Oil Corporation Date Sampled _____
DST No. _____ Sample _____ Date Analyzed 7-21-75
Other Data Salt Water Station No. 1 North End
Slightly murky water; filtrate clear and colorless. H₂S present.

Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	59,790	2600.71	47.92	By evaporation _____
Calcium	1,931	96.33	1.77	After ignition _____
Magnesium	208	17.09	0.31	Calculated <u>158,549</u>
Sulfate	1,506	31.33	0.58	pH <u>6.2</u>
Chloride	95,000	2679.00	49.35	Specific Gravity @ 68°F <u>1.104</u>
Carbonate	0	0.00	0.00	Resistivity @ 68°F _____
Bicarbonate	232	3.80	0.07	ohms/meter <u>0.062</u>

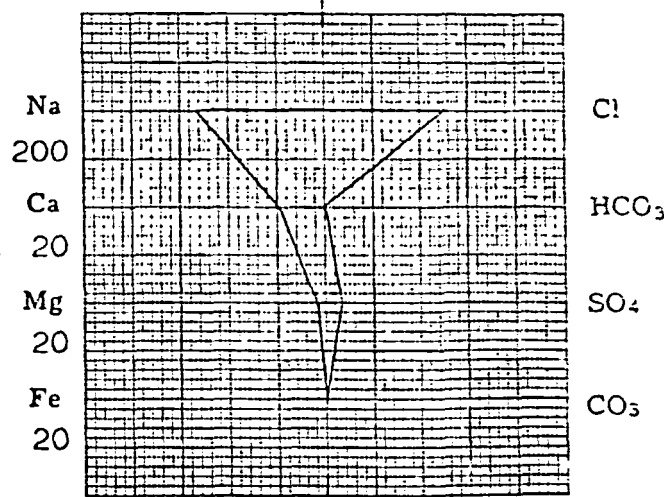
Chloride as NaCl 156,655 PPM. Total Solids From Resistivity as NaCl 157,763 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ.=milliequivalents per liter. PPM=parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%.

1. Bromine 7 ppm
2. Iodine <1 ppm

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



(< is less than)

YAPUNCICH-SANDERSON LABORATORIES

BILLINGS, MONTANA

P. O. BOX 593

5 & 9 1/2 N. 25TH ST.

WATER ANALYSIS REPORT

Lab. No. 461-W

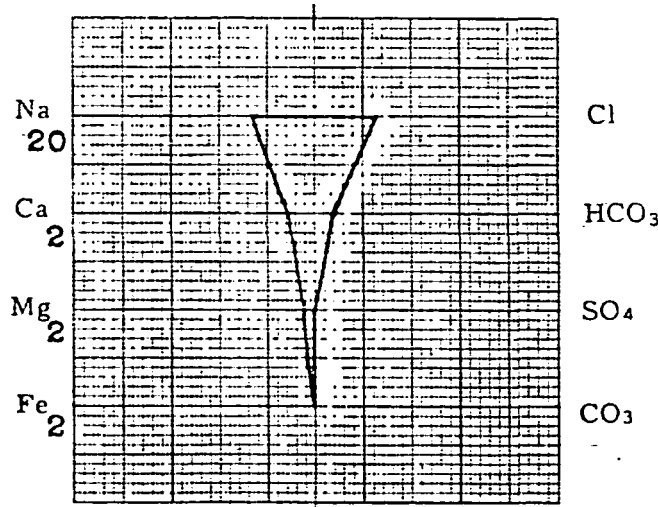
Field E. Poplar County Roosevelt State Montana
 Well No. 4G Location SW SE 19-29N-51E
 Formation Judith River Depths 850'
 Operator Murphy Corporation Date Sampled 10-21-54
 DST No. Sample Production Sample Date Analyzed 10-25-54
 Other Data Sample clear colorless water. Sample from a gas well.

Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	3057	132.95	47.16	By evaporation <u>10,028</u>
Calcium	106	5.29	1.88	After ignition <u>9764</u>
Magnesium	33	2.71	0.96	Calculated <u>9900</u>
Sulfate	Trace	Trace	Trace	pH <u>6.4</u>
Chloride	6583	136.93	48.57	Specific Gravity @ 60°F <u>1.009</u>
Carbonate	0	0	0	Resistivity @ 68°F
Bicarbonate	245	4.02	1.43	ohms/meter ² <u>0.63</u>
Chloride as NaCl <u>10,855</u> PPM.				Total Solids From Resistivity as NaCl <u>9873</u> PPM.

NOTE: Sodium and potassium reported as sodium. MEQ.=milliequivalents per liter. PPM=parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%.

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit

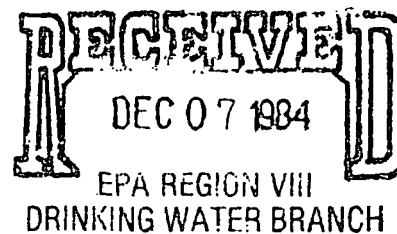


SPECIALIZING IN CORE, WATER, GAS AND CRUDE OIL ANALYSES



200 PEACH STREET
EL DORADO, ARKANSAS 71730

December 5, 1984



Mr. Max Dodson, Director
Water Management Division
United States Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295-0699

Re: Underground Injection
Control (UIC) Permit
Application for: East
Poplar Field Well Nos.
1-D, 5-D, 8-D, 29-D, 59-D,
and 80-D. Ref: 8WM-DW

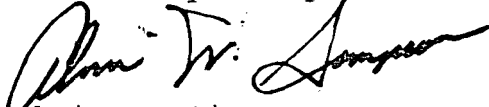
Dear Mr. Dodson:

The subject permit applications have been reviewed based on the list of deficiencies you submitted to us following the initial filing. We believe the applications are now essentially complete. The only part we have not completed is the Area of Notification. We are currently working to complete this requirement and will notify you as required when it has been done.

We plan to send written notification from our Vice President of Production and Exploration, Mr. Glenn M. Fedderson, duly authorizing the undersigned as the representative for any future permit applications or reports under 40 CFR Section 144.32 (a) and (b).

Therefore, would you continue to direct all correspondence concerning this matter to my attention.

Yours very truly,



Alvin W. Simpson
Manager of Operations

AWS/cs
Attachments

cc: Ray Reede
P. O. Box 547
Poplar, MT 59255





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL
PERMIT APPLICATION

(Collected under the authority of the Safe Drinking
Water Act, Sections 1421, 1422, 40 CFR 144)

I. EPA ID NUMBER

U	T/A	C
---	-----	---

READ ATTACHED INSTRUCTIONS BEFORE STARTING
FOR OFFICIAL USE ONLY

Application approved mo day year	Date Received mo day year	Permit/Well Number	Comments
		EPU 29-D	

II. FACILITY NAME AND ADDRESS III. OWNER/OPERATOR AND ADDRESS

Facility Name East Poplar Unit		Owner/Operator Name Murphy Oil USA, Inc.	
Street Address P. O. Box 547		Street Address 200 Peach Street	
City Poplar	State MT	ZIP Code 59255	City El Dorado
			State AR
			ZIP Code 71730

IV. OWNERSHIP STATUS (Mark 'x') V. SIC CODES

<input type="checkbox"/> A. Federal	<input type="checkbox"/> B. State	<input checked="" type="checkbox"/> C. Private	1311
<input type="checkbox"/> D. Public	<input type="checkbox"/> E. Other (Explain)		

VI. WELL STATUS (Mark 'x')

<input checked="" type="checkbox"/> A. Operating	Date Started mo day year 4 27 81	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed
Permitting Existing Well Approved by Rule			

VII. TYPE OF PERMIT REQUESTED (Mark 'x' and specify if required)

<input checked="" type="checkbox"/> A. Individual	<input type="checkbox"/> B. Area	Number of Exist- ing wells 1	Number of Pro- posed wells	Name(s) of field(s) or project(s) East Poplar Unit
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VIII. CLASS AND TYPE OF WELL (see reverse)

A. Class(es) (enter code(s)) II D	B. Type(s) (enter code(s))	C. If class is "other" or type is code "x," explain	D. Number of wells per type (if area permit)
---	-------------------------------	---	--

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT X. INDIAN LANDS (Mark 'x')

A. Latitude		B. Longitude		Township and Range										X. INDIAN LANDS (Mark 'x')	
Deg	Min	Sec	Deg	Min	Sec	Twsp	Range	Sec	1/4 Sec	Feet from	Line	Feet from	Line		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
						29N	51E	28	SW	660	S	660	W		

XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application: A, E, G, H, M, Q, R, and U.

XII. CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print) GLENN M. FEDDERSON Vice President	B. Phone No. (Area Code and No.) 501/862-6411
C. Signature 	D. Date Signed 12/4/84

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

COMPLETION FORM FOR INJECTION WELLS

ADMINISTRATIVE INFORMATION

1. Permittee

Murphy Oil USA, Inc.

Address (Permanent Mailing Address) (Street, City, State, and ZIP Code)

P. O. Box 547, Poplar, Montana 59255 (District Office)
200 Peach Street, El Dorado, Arkansas 71730 (Home Office)

2. Operator

Murphy Oil USA, Inc.

Address (Street, City, State, and ZIP Code)

Same as Above

3. Facility Name

East Poplar Unit

29D

Telephone Number

District Office 406-768-3611

Home Office 501-862-6411

Address (Street, City, State, and ZIP Code)

Murphy Oil USA, Inc. (District Office)
P. O. Box 547
Poplar, Montana 59255

4. Surface Location Description of Injection Well(s)

State

Montana

County

Roosevelt

1/4 of

1/4 of

SW

1/4 section

SW 28

Township

29N

Range

51E

Feet from (N/S)

660

Line of quarter section and

S

Feet from (E/W)

660

Line of quarter section

W

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

GLENN M. FEDDERSON

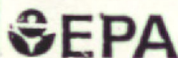
Vice President

SIGNATURE

DATE SIGNED

12/4/84

Deal	
Form	

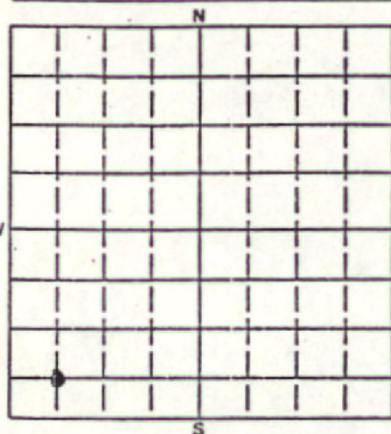
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460Form Approved
OMB No. 2040-0042
Approval expires 9-30-86**COMPLETION REPORT FOR BRINE DISPOSAL,
HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL**

NAME AND ADDRESS OF EXISTING PERMITTEE

Murphy Oil USA, Inc.
200 Peach St.
El Dorado, Arkansas

EPU 29-D

NAME AND ADDRESS OF SURFACE OWNER

Zimmerman Inc.
Box 277
Poplar, MTLOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

MT

COUNTY

Roosevelt

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF SW 1/4 OF SW 1/4 SECTION 28 TOWNSHIP 29N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface
Location 660 ft. from (N/S) S Line of quarter section

and 660 ft. from (E/W) W Line of quarter section

WELL ACTIVITY

☒ Brine Disposal☐ Enhanced Recovery☐ Hydrocarbon Storage

TYPE OF PERMIT

☒ Individual☐ Area

Number of Wells 1

Estimated Fracture Pressure
of Injection Zone 1 psi/foot

Anticipated Daily Injection Volume (Bbls)

Average

2325

Maximum

4725

Injection Interval

Feet

853

to Feet

887

Anticipated Daily Injection Pressure (PSI)

Average

600

Maximum

650

Depth to Bottom of Lowermost Freshwater Formation
(Feet)

Est. 89'

Type of Injection Fluid (Check the appropriate block(s))

☒ Salt Water☐ Brackish Water☐ Fresh Water☐ Liquid Hydrocarbon☐ Other

Lease Name

EPU

Well Number

29-D

Name of Injection Zone

Judith River

Date Drilling Began

8-12-53

Date Well Completed

9-13-53

Permeability of Injection Zone

21 MD

Date Drilling Completed

9-9-53

Porosity of Injection Zone

31%

CASING AND TUBING

OD Size	Wt/Ft — Grade — New or Used	Depth
13 3/8	48# H-40 New	162.45'
9 5/8	36# H-40 New	1002.44'
5 1/2	15.5# J-55 New	5875'
2 7/8	6.5# J-55 New	124.34'
3 1/2	fiberglass New	630.10'

CEMENT

HOLE

Sacks	Class	Depth	Bit Diameter
275	G?	178'	1 7/8"
400	G?	1010'	12 1/4"
300	G?	5876'	8 3/4"

INJECTION ZONE STIMULATION

Interval Treated	Materials and Amount Used
None	

WIRE LINE LOGS, LIST EACH TYPE

Log Types	Logged Intervals
Elect Survey	173-5875
Detail	4000-5875
Microlog	4000-5873
Gamma Ray-Neutron	4000-5869
Gamma Ray-Neutron	650- 941

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

GLENN M. FEDDERSON

Vice President

Deal
Form

DATE SIGNED

12/4/84



PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY

Murphy Oil USA, Inc.
Poplar, Montana

EPU 29-D

NAME AND ADDRESS OF OWNER/OPERATOR

MURPHY OIL USA, INC.
200 Peach St., El Dorado, AR 71730LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

MT

COUNTY

Roosevelt

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF SW 1/4 OF SW 1/4 SECTION 28 TOWNSHIP 29N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface
Location 660 ft. from (N/S) S Line of quarter sectionand 660 ft. from (E/W) W Line of quarter section

TYPE OF AUTHORIZATION

- ☒
- Individual Permit
-
- ☐
- Area Permit
-
- ☐
- Rule

Number of Wells 1

Lease Name EPU

WELL ACTIVITY

- ☐
- CLASS I
-
- ☒
- CLASS II
-
- ☒
- Brine Disposal
-
- ☐
- Enhanced Recovery
-
- ☐
- Hydrocarbon Storage
-
- ☐
- CLASS III

Well Number 29-D

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
13 3/8	48		156.45	17 1/2
9 5/8	36		996.44	12 1/4
5 1/2	15.5		3888	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒
- The Balance Method
-
- ☐
- The Dump Bailer Method
-
- ☐
- The Two-Plug Method
-
- ☐
- Other

CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	9 5/8 *	9 5/8					
Depth to Bottom of Tubing or Drill Pipe (ft.)	803						
Sacks of Cement To Be Used (each plug)	4.5	4.5					
Slurry Volume To Be Pumped (cu. ft.)	4.5	4.5					
Calculated Top of Plug (ft.)	793	10'					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
853	887		

Estimated Cost to Plug Wells \$ 6,000

*Cast Iron Bridge Plug will be set at 803' with 4.5 sacks cement on top. The plug will be within 10' of surface and casing will be cut off 6' below ground and a plat welded on top.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

GLENN M. FEDDERSON
Vice President

SIGNATURE

Deal
Form

DATE SIGNED

12/4/84

EPU #29-D

A. Area of Review

Fixed Radius of 1/4 Mile - Field Plat attached.
No wells within the area of review

E. Name and Depth of USDWs (Class II)

<u>Depth</u>	<u>Name</u>	<u>Local Name</u>
89+	Tertiary Sand	Unknown

G. Geological Data

<u>Zone</u>	<u>Name</u>	<u>Description</u>	<u>Depth</u>	<u>Thickness</u>	<u>Frac Pressure</u>
Upper					
Confining	Bear Paw Shale	Gray Shale	250'±	500'±	Unknown
Injection	Judith River	V.Lt. Gray, Fine to Medium grained, Calcareous, glauconitic sandstone	750'±	200'±	1 psi/foot
Lower					
Confining	Claggett & Eagle Shales	Gray Shale	950'±	1150'±	Unknown

H. Operating Data

- (1) Average Injection Volume - 2325 Bbls/Day Injection Rate - 97 Bbls/Hour
Maximum Injection Volume - 4725 Bbls/Day Injection Rate - 194 Bbls/Hour
- (2) Average Injection Pressure - 600 psi
Maximum Injection Pressure - 650 psi
- (3) Annulus Fluid - Corrosion Inhibited fluid
- (5) Source of Injection Fluid - Mississippian Formation Fluid
Produced from the East Poplar Field (See attached Analysis)
- (6) SWD Station No. 6 operates with one pump and a backup pump.

M. Schematics Attached

Q. Plugging and Abandonment Plan

EPA Form 7520-14 is attached

R. Necessary Resources

See attached financial statement

U. Description of Business - EPU Well No. 29-D is used to dispose of part of the produced salt water from the East Poplar Unit wells. The salt water is separated from the produced fluid and comes to the disposal facility at SWD Station No. 1 through closed flowlines. The salt water is held in the salt water storage tanks until the salt water disposal pumps are engaged through automatic level switches. The salt water disposal pumps dispose of the salt water into the tubing of the wellbore and then into the formation.

The produced fluids are mixed in the flowlines and the resulting final TDS is approximately 130,000 TDS.

The SWD Station No. 6 operates an average of 22 hours per day.

MURPHY
OIL USA, INC.

200 PEACH STREET
EL DORADO, ARKANSAS 71730

POPLAR AREA ROOSEVELT COUNTY, MONTANA

CONTOUR INTERVAL:

DATE:

SCALE 1" = 4000'

